

## REMARKS

### Claim amendments

Applicant has amended claims 1, 6 and 7, and cancelled claim 5.

Claim 1 has been amended by introducing the following restrictions. The mid-section is now restricted to be being frusto-conical in shape, as former claim 5 is now incorporated into claim 1. In addition, the tapering is restricted as being towards only the front end of the projectile, as shown in Figures 4-6 of the present application.

Claims 6 and 7 have been amended to claim dependency on claim 1, since claim 5 has been deleted, and the subject matter thereof has been incorporated into claim 1.

## EXAMINER'S OBJECTIONS

### Rejections under 35 USC § 102

#### *Response to Examiner's Response to Arguments*

##### 1. Disclosure of Studler

The Examiner has rejected the Applicant's argument that Studler discloses two gaps, whereas the claims call for only one, based on use of the transitional phrase "comprising", which in the Examiner's view, does not preclude the presence of additional elements.

Applicant respectfully disagrees with the Examiner's assessment. In April, 2010, the CAFC issued a decision in *ex parte* re-examination 90/007,015 appeal (U.S. Patent No. 4,944,514), in which the court noted that:

*“[t]he PTO’s construction here, though certainly broad, is unreasonably broad. The broadest-construction rubric coupled with the term “comprising” does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention. Rather, claims should always be read in light of the specification and teachings in the underlying patent. See Schriber-Schroth Co. v. Cleveland Trust Co., 311 U.S. 211, 217 (1940) (“The claims of a patent are always to be read or interpreted in light of its specifications.”) . . .”*

Applicant respectfully submits that the specification of the present application clearly teaches that one tapered gap is present along the mid-section of the core, as clearly stated in paragraphs [0062], [0063]] and [0064]. In paragraph [0062], it is stated that the jacketed projectile comprises “a solid central core with a midsection or central portion which is not in continuous circumferentially contact with the jacket for at least a portion of its length”. It is clear that one central portion is not in continuous contact circumferentially with the jacket; i.e. only one gap is present. In paragraph [0063], it is stated that “in a preferred embodiment, a separation or gap is provided between the jacket and the core along the surface of the midsection or fustro-conical portion of the core. This gap encircles the frusto-conical central portion and is itself tapered.” That is, only one gap is present. Similarly, in paragraph [0064], “According to the most preferred embodiment of the invention, the tapered encircling gap is air-filled. However, such gap may be filled with any compressible substance …”, which clearly teaches the presence of one gap only.

Applicant therefore submits that Studler’s disclosure of 2 gaps does not anticipate the claims of the present invention.

## 2. Disclosure of Studler and Rapp

The Examiner has argued that the grooves of Studler and Rapp are not tapered, since “it would appear that the groove does in fact taper or become narrower as you follow it from the rear end of the groove to the midpoint”.

Applicant respectfully disagrees with the Examiner.

In Schriber-Schroth Co. v. Cleveland Trust Co., 311 U.S. 211, 217 (1940), the court stated that "The claims of a patent are always to be read or interpreted in light of its specifications." Claim 1 clearly states that "the midsection portion is tapered, tapering towards the front end of the projectile to provide a tapered separation between the jacket and the core along at least a portion of the length of the midsection portion..." In light of the specification, it is clear that the gap of the present invention is tapered uniformly towards the front end of the projectile (see Figs. 4-6; paragraph [0063]). The groove (3) of Studler, or the grooves (1 and 11) of Rapp, are not tapered uniformly throughout the length of the groove.

In addition, it is clearly stated at paragraph [0029] that "Projectile stripping has been known to occur when the diameter of the rearward end of the ogival section of the short steel penetrator exceeds that of the forward end of the cylindrical section of the lead core. The effect is one of a generating a sharp cutting edge on the inside of the copper jacket, magnified during the projectile engraving process." The groove (3) disclosed by Studler clearly has a diameter at the forward end of the cylindrical section of the core that is exceeded by the diameter of the rearward end of the ogival section, which generates a sharp cutting edge on the inside of the jacket. This type of groove is clearly excluded by the teachings of the present application. Similarly, a sharp cutting edge is present in the projectile of Rapp, as the diameter of the forward end of the cylindrical section (i.e. groove 1), is less than the diameter of the rearward end of the front section (8, 10) of the projectile. The specification therefore teaches away from the type of groove disclosed by either Studler or Rapp.

In summary, each element of claim 1 is not anticipated by either the disclosure of Studler or Rapp.

*Rejection in view of US 2,322,751 (Studler)*

The Examiner has rejected claims 1-5, 8, 10, 11, 14 and 15 under 35 USC § 102(b) as being anticipated by US 2,322,751 (Studler).

Applicant respectfully traverses the rejection, in view of the amendments made to claim 1.

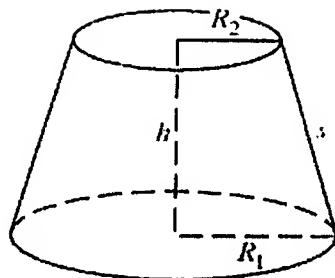
In its amended form, claim 1 discloses a midsection portion which is not in continuous contact with the jacket over a least a portion of the midsection portion, wherein the midsection portion is frusto-conical in shape and tapered, tapering towards only the front end of the projectile to provide a tapered separation between the jacket and the core along at least a portion of the length of the midsection.

Studler discloses a jacketed engravable projectile with a generally cylindrical core including two annular grooves (2 and 3). Both grooves may contribute to the reduction of the forcing resistance; however the key difference is that Studler introduces grooves into the projectile core to create two gaps between the core and the jacket, whereas claim 1 discloses a projectile that has one long, gradual taper angle of generally frusto-conical shape in the core to introduce a single gap between the core and jacket. The present invention discloses only one tapered midsection portion that is not in continuous contact with the jacket.

As discussed above, the CAFC has indicated that the transitional term “comprising” “...*does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention. Rather, claims should always be read in light of the specification and teachings in the underlying patent...*”.

The teaching of the specification makes it clear that only one tapered gap is present, whereas Studler discloses two grooves.

In addition, the amended form of claim 1 limits the shape of the mid-section as frustoconical. According to the online dictionary “Wiktionary”, “frustoconical is defined as having “the shape of a frustum of a cone”, the frustum being defined as “ a cone or pyramid whose tip has been truncated by a plane parallel to its base.” So, frustoconical refers to a conical section with a parallel base and truncated tip, as illustrated below:



The frustoconical shape above is characterized by two planar, parallel circles, one circle with radius  $R_1$ ; the other with radius  $R_2$ , with  $R_1 > R_2$ ; and height  $h$ .

The “midsection portion” of Studler, when taken with separated grooves (2) and (3) is not frustoconical in shape, due to the cylindrical “ridge” between grooves 2 and 3.

In addition, claim 1 has been amended to specify that the tapering is only towards the front. The grooves of Studler, however, are not tapered uniformly, as, according to the Examiner, “the midsection grooves taper toward both ends of the projectile.”

Groove 3 of Studler is essentially a radius of removed material situated at that portion of the projectile where the rifling lands start to engrave the projectile. This groove is concave in shape and does not have a tapered angle in its geometry.

With regards to the midsection portion of Studler at groove 2, it is slightly tapered towards the rear of the projectile, and not towards the front. This is in direct contrast to claim 1, which requires tapering towards the front of the projectile.

Applicant hereby submits that claim 1 is novel over Studler, and therefore, submits that dependent claims 2-5, 8, 10, 11, 14, 15 and 23 are also novel over Studler.

US 3,348,486 (Rapp)

The Examiner has rejected claims 1-4, 8, 10 and 11 under 35 USC § 102(b) as being anticipated by US 3,348,486 (Rapp).

In view that the subject matter of claim 5 (which is not anticipated by Rapp has been incorporated into claim 1, Applicant respectfully submits Rapp does not anticipate claim 1.

Applicant hereby submits that claim 1 is novel over Rapp, and therefore, submits that dependent claims 2-4, 8, 10, 11 and 23 are also novel over Rapp.

Rejections under 35 USC § 103

Claims 6,7,9, 13, 16 and 24

The Examiner has rejected claims 6, 7,9,13, 16 and 24 under 35 USC § 103 (a) as being obvious over Studler in view of established case law. The Examiner asserts that Studler discloses a jacketed projectile that includes a midsection with a taper.

Applicant respectfully traverses the rejection. In its amended form, claim 1 requires a midsection portion which is not in continuous contact with the jacket over a least a portion of the midsection portion, wherein the midsection portion is frustoconical in shape and tapered, tapering towards only the front end of the projectile to provide a tapered separation between the jacket and the core along at least a portion of the length of the midsection.

As discussed above, Studler does not disclose a tapered groove that tapers towards only the front of the projectile, nor does he disclose a midsection portion that is frustoconical in shape. Instead the groove of Studler is concave in profile, and the resulting abrupt change in projectile diameter leads to a lack of support of the projectile in the barrel, and does not allow for gradual engraving.

Applicant submits that since Studler does not disclose the subject matter of claim 1, the specific dimensions/characteristics of the projectile in dependent claims 6, 7, 9, 13,16 and 24 are inventive over Studler.

Claims 12, 17, 18 and 19

The Examiner has rejected claims 12, 17, 18 and 19 under 35 USC § 103 (a). The Examiner asserts that Studler discloses a jacketed projectile that includes a midsection with a taper.

Applicant respectfully traverses the Examiner's assertion that Studler discloses a jacketed projectile as disclosed in the amended form of claim 1 of the present application (please see above detailed arguments). Applicant submits that since Studler does not disclose the subject matter of claim 1, the specific materials of the projectile disclosed in dependent claims 12, 17, 18 and 19 are inventive over Studler.

Conclusion

On this basis, the Applicants request reconsideration and withdrawal of the objections and rejections.

Respectfully submitted,  
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